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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,997	02/04/2004	Osamu Nozawa	0524-0139.01	4072

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EXAMINER	
MCDONALD, RODNEY GLENN	
ART UNIT	PAPER NUMBER
1753	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,997	NOZAWA ET AL.	
	Examiner	Art Unit	
	Rodney G. McDonald	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10-20-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 30-33 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S. Pat. 4,388,034) in view of Tu et al. (U.S. Pat. 5,714,285) and Yamanishi et al. (U.S. Pat. 5,626,727).

Regarding claims 30, 40, Takahashi teach an apparatus and method for forming thin film on each of a plurality of substrate. (See Abstract) A sputtering chamber 11 for carrying out sputtering to form the thin film on a surface of each substrate in a sputtering time. (Column 3 lines 17-22) A conveyor 33 for conveying each of the plurality of substrates one by one for introducing each of the substrates into the sputtering chamber

11 having one sputtering target 34 therein. (Column 3 lines 13-16) The conveyor is capable of conveying one substrate at a time to introduce the substrate in the sputtering chamber so that the sputtering time for carrying out the sputtering for a substrate and an interval time which runs from an end of sputtering for one substrate to a start of sputtering for a next substrate are respectively made constant. (Column 3 lines 13-36) (The time between sputterings would be constant since the substrates are moved in a linear fashion from load lock to processing to output load lock.)

Regarding claim 31, 42, Takahashi teach a first load lock mechanism solely for introducing the substrate into the sputtering chamber and a second load lock mechanism solely for discharging the substrate with a film formed thereon in the sputtering chamber, wherein the first load lock mechanism is capable of keeping a substrate subject to the film forming on standby until a substrate with film formed thereon by a previous film forming is transferred to the second load lock mechanism. (Column 2 lines 56-68; Column 3 lines 1-16; Column 3 lines 23-36)

Regarding claim 32, 41, each of the first load lock mechanism and the second load lock mechanism comprises a load lock chamber, and the load lock mechanism is capable of venting fro making the inside room of the load lock chamber into atmospheric pressure for transferring the substrate outside, evacuating the inside room of the load lock chamber up to a predetermined degree of vacuum for transferring the substrate with, the sputtering chamber, and wherein the load lock chamber accepts one substrate at one time, so that introducing each substrate into and discharging each substrate from

the sputtering chamber be continuously made at a constant interval. (Column 2 lines 56-68; Column 3 lines 1-16; Column 3 lines 23-36)

The difference between Takahashi and the present claims is that making photomask blanks is not discussed (Claims 30, 40), the substrate holder is capable of holding the substrate in a horizontal state, and the substrate holder and the target holder are placed so that the target be held opposite to the substrate, a center axis of the target deviating from a center axis of the substrate (Claim 33) and the substrate having a rotating mechanism is not discussed (Claim 33).

Regarding claims 30, 40, Tu et al. teach forming a photomask blank having at least a thin film for forming a pattern on a transparent substrate. (See Abstract)

Regarding claim 33, Tu et al. teach forming a photomask blank having at least a thin film for forming a pattern on a transparent substrate. (See Abstract) The process comprises setting a substrate 22 in a horizontal position where a surface of the substrate and a surface of a sputtering target are in opposed positions with a center axis of the target deviating from the center axis of the substrate surface. (See Figure 5; Column 4 lines 4-35) The target and the substrate form a predetermined angle therebetween. (See Figure 5)

The motivation for utilizing the features of Tu is that it allows formation of a photomask. (See Abstract)

Regarding the rotating (Claim 33), Yamanishi et al. teach rotating a substrate holder when opposed to targets offset from the axis of the substrate and angled thereto. (Column 7 lines 17-31)

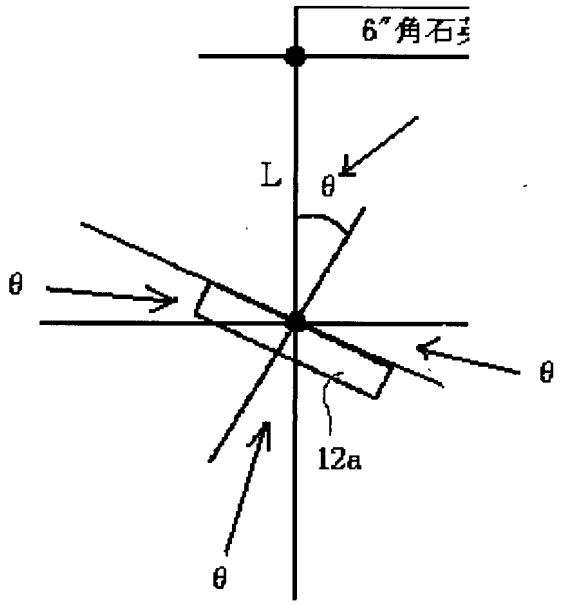
The motivation for utilizing a rotating substrate holder is that it allows for controlling the uniformity of the thin film deposited. (Column 7 lines 17-25)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Takahashi et al. by utilizing the features of Tu et al. and Yamanishi et al. because it allows formation of a photomask with a uniform film.

Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Tu et al. and Yamanishi et al. as applied to claims 30-33 and 40-42 above, and further in view of Satoshi (Japan 10-303172).

The differences not yet discussed are the predetermined angle (Claim 34), the angle being 10 to 30 degrees (Claim 35) and the angle being 10 to 15 degrees (Claim 36).

Regarding the angle (Claims 34-36), Satoshi teach providing the opposite surface of the substrate and the target at 10 to 60 degrees for forming photomask blanks. (See Machine Translation 0015; Fig. 4; Annotated Fig. 4 below)



The motivation for utilizing a particular angle is that it allows for improving the distribution of the film in the plane of the substrate. (See Abstract)

Therefore, it would have been obvious to deposit at a particular angle as taught by Satoshi because it allows for improving the distribution of the film in the plane of the substrate.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 30, 33, 34, 35, 36, 37, 38 and 39 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 6, 7, 9, 12-16, 26, 27 and 33-36 of copending Application No. 10/821,508 in view of Takahashi (U.S. Pat. 4,388,034).

Claims 6, 7, 9, 12-16, 26, 27 and 33-36 of Application 10/821,508 teach the relationships of the substrate to target, the angles of the substrate to target and the rotational movement of the substrate including the integer requirement. (See Claims 6, 7, 9, 12-16, 26, 27 and 33-36 of Application 10/821,508)

The difference between the claims of Application 10/821,508 and the present claims is that the apparatus for carrying out the sputtering is not discussed.

Takahashi discussed above suggests a sputtering apparatus for coating substrates where a time interval between the coating of the substrates is constant due to the single flow scheme. (See Takahashi discussed above)

The motivation for utilizing a single flow scheme is that it allows for increasing throughput. (See Takahashi discussed above)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified 10/821,508 by utilizing an apparatus that

coats substrates with equal time between the coating as taught by Takahashi because it increases throughput.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

Applicant's arguments filed February 16, 2007 have been fully considered but they are not persuasive.

In response to the argument that the prior art does not teach making a sputtering time constant or making an interval time, which runs from an end of the sputtering for one substrate to a start of sputtering for the next substrate, constant, it is argued that the time between sputterings would be constant since the substrates are moved in a linear fashion from load lock to processing to output load lock. (See Takahashi discussed above)

In response to the argument that the prior art does not teach utilizing a single sputtering target for the chamber, it is argued that Takahashi teach utilizing only a single target fro a single chamber. (See Takahashi discussed above)

In response to the argument that the prior art does not teach a load lock mechanism for "solely" introducing a substrate into the sputtering chamber, it is argued that Takahashi teach utilizing a load lock which introducing a single substrate into the chamber and is used solely for introducing substrates one by one in the sputtering chamber.

The obviousness type double patenting rejection will be maintained based on reasons set forth above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-TH with every Friday off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
April 24, 2007